

130. Third, Commission staff obtained information on switch investment from ILEC depreciation studies. These studies include listings of the dates switches were installed, the number of lines served by each switch, and the gross investment in each switch. The staff's statistical analysis of this information indicates that the 1995 fixed cost of a switch was \$185,374.00 and the 1995 per-line cost is \$107.00.¹⁹⁴

131. In addition, the Commission and interested parties might consider statements made by members of industry regarding switching costs. For example, Southwestern Bell-Texas (SWBT) testified in a recent state telephone investigation that it has received switch bids of \$85.00 per line (engineered, furnished, and installed), and that state taxes increase SWBT's cost to \$109.00 per line. SWBT's testimony states that SWBT's average cost per line for an additional line on an existing switch -- a "growth line" -- is \$248.00.¹⁹⁵

(2) Issues for Comment

132. Input Values. We tentatively conclude that the selected mechanism should incorporate the Commission staff's estimates of switching costs¹⁹⁶ because these estimates are based on filings with the Commission that record actual ILEC switch purchases. We seek comment on this tentative conclusion. We also seek comment on whether there is an alternative data source for these costs that would provide a better estimate of the current cost of switches. We also seek comment on the reasonableness of using the default input values from BCM2, as suggested by Sprint. In addition, we seek comment on whether we should incorporate the cost of growth lines into our switching cost estimate and, if so, how we should incorporate these costs, and what data sources we should use for the cost of growth lines.

d. Percent of Switch Assigned to Port and to Provision of Universal Service

(1) Background

133. Platform Design and Input Values. The models differ with respect to the percentage of switch costs they assign to the port and the percentage of switch costs that is assigned to the provision of universal service. The models divide the switch investment

¹⁹⁴ See Staff Analysis of Cost Models.

¹⁹⁵ Direct Testimony of Hugh W. Raley, Southwestern Bell Telephone Company, Dockets Nos. 16189, 16196, 16226, 16285, 16290, before The Public Utility Commission of Texas, at 7.

¹⁹⁶ As noted above, these estimates are based on ILEC depreciation studies and show that the 1995 fixed cost of a switch was \$185,374.00 and the 1995 per-line cost was \$107.00.

between two basic functions: port and usage.¹⁹⁷ The Joint Board suggested that the Commission review the percentage of switch costs that the models assign to the provision of universal service.¹⁹⁸

134. BCPM uses local-usage dial equipment minutes (DEM) to divide switch costs between the costs of providing universal service and the costs of providing all other services. In contrast, Hatfield 3.1 assigns 30 percent of switch cost to port costs and assigns all of the port costs to the cost of providing universal service. Hatfield further divides the 70 percent of switch cost it assigns to usage between local traffic and toll traffic on the basis of conversation minutes and includes the cost of local traffic in the cost of universal service.¹⁹⁹ The BCPM proponents state that both models could be adjusted so that they assign less than 100 percent of local usage to the provision of universal service, and vary the portion of traffic sensitive access usage assigned to the provision of universal service.²⁰⁰

(2) Issues for Comment

135. Platform Design and Input Values. We tentatively conclude that switch costs should be divided between line-side port and usage costs. This would be consistent with our decision in the *Access Charge Reform Order* to make this same distinction in access charges,²⁰¹ and also is most consistent with our decision in the Order to support only non-traffic sensitive costs associated with access to interexchange service.²⁰² We tentatively conclude, however, not to adopt either of the models' assumptions regarding the percentage of the switch investment that is associated with the port. We seek comment on these tentative conclusions and on whether we can use the information that ILECs must file in response to our *Access Charge Reform Order* to determine the percentage of the switch investment to be allocated to the port function.²⁰³ We also seek comment on a reasonable percentage of switch costs to include in the port function.

¹⁹⁷ In our *Access Charge Reform Order*, we defined the line-side port to include the line card, the protector, and the main distribution frame. *Access Charge Reform Order* at para. 125.

¹⁹⁸ Recommended Decision, 12 FCC Rcd at 532-533.

¹⁹⁹ Hatfield Feb. 28 submission at 27-28.

²⁰⁰ BCPM Jan. 31 submission, att. 9, app. B, at 8.

²⁰¹ See *Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, End User Common Line Charges*, CC Docket No. 96-262, 94-1, 91-213, 95-72, *First Report and Order*, FCC 97-158, (adopted May 7, 1997) (*Access Charge Reform Order*) at para. 125.

²⁰² Order at para. 76.

²⁰³ See *Access Charge Reform Order* at para. 128.

136. In light of the difficulty in obtaining information on switching costs and the proportion of the switch to be included in the port function, we seek comment on whether the Commission should undertake a detailed engineering study of several of the large host switches currently being deployed by ILECs (such as the Nortel DMS-100 and the Lucent 5ESS) and associated remote switches and smaller switches (such as the Nortel DMS-10) to ascertain what portions of the switch equipment are associated with the port function. We seek comment on whether such an engineering study could result in useful information about the portions of switch that are associated with the port function and the costs of that equipment. We also seek comment on whether alternative data sources are available for the purpose of estimating current switching cost. If so, we seek comment on how to obtain and use that information.

137. We tentatively conclude that all of the port cost and a percentage of the usage cost are costs of providing universal service. We tentatively conclude that the percentage of the usage cost that should be assigned to the cost of providing universal service should be determined by the amount of local usage included in the definition of supported services that we will adopt, as a percentage of total usage that the model predicts on the network.²⁰⁴ We seek comment on these tentative conclusions.

e. Dates for Comments on Switching

138. As discussed in section III.B.2, interested parties may file comments on the platform design relating to switching on or before August 8, 1997, and reply comments on or before August 18, 1997.²⁰⁵ Interested parties may file comments on the input values relating to switching on or before October 17, 1997, and reply comments on or before October 27, 1997.²⁰⁶

4. Interoffice Trunking, Signaling, and Local Tandem Investment

a. Background

139. We recognize two uses for interoffice trunking, signaling, and local tandem facilities: (1) the completion of local calls and (2) transport to an IXC point of presence (POP). Because transport for interexchange service is not a supported service,²⁰⁷ the selected

²⁰⁴ See *infra* section VI.

²⁰⁵ See *infra* app. A, Comment Submission Schedule.

²⁰⁶ *Id.*

²⁰⁷ Order at para. 76.

mechanism will estimate only the cost of interoffice trunking, signaling, and local tandem facilities used for the completion of local calls.

140. Platform Design and Input Values. BCPM employs a simple multiplier to estimate the portion of total interoffice trunking, signaling, and local tandem costs that should be attributed to supported services. The multiplier is a percentage of switch investment. Hatfield treats these facilities on a more disaggregated basis. Hatfield assigns different ratios for different types of interoffice trunking, signaling, and local tandem facilities based on its assumptions with respect to traffic, routing, and the total mix of access lines served by each switch. Hatfield assumes that, except for wire centers with fewer than 5,000 lines, all interoffice facilities consist of SONET fiber rings, and Hatfield treats access facilities for IXC POPs separately. Hatfield allows the interoffice facilities used to complete local calls to share structures²⁰⁸ with interoffice facilities used to carry traffic to IXCs, and it apportions the cost of these structures between these two functions according to a user-defined sharing percentage. Both models allow the user to alter the input values to their transport equations.

b. Issues for Comment and Comment Dates

141. Platform Design and Input Values. Because interoffice trunking, signaling, and local tandem facilities are an integral part of the network necessary to provide the supported services, we tentatively conclude that the selected mechanism should calculate specific cost estimates for the interoffice elements necessary to provide these functionalities.²⁰⁹ Because Hatfield's platform design can generate cost estimates at this level of specificity, but BCPM's cannot, we tentatively conclude that only Hatfield's platform is currently adequate in this regard. We seek comment on this tentative conclusion and on the accuracy of Hatfield's transport algorithm. We also seek comment on the accuracy of the specific interoffice trunking, signaling, and local tandem input values proposed by Hatfield 3.1. As discussed in section III.B.2, interested parties may file comments on these design issues on or before August 8, 1997, and reply comments on or before August 18, 1997.²¹⁰ Interested parties may file comments on the issues relating to input values on or before October 17, 1997, and reply comments on or before October 27, 1997.²¹¹

²⁰⁸ As discussed above, structure sharing refers to the practice of sharing facilities such as poles, trenches, and conduits. In section III.C.2.d, however, we discuss structure sharing between telecommunications carriers and other utilities. In this case, we refer to structure sharing between facilities used to provide supported services and other telecommunications facilities.

²⁰⁹ Aliant model comments at 7.

²¹⁰ See *infra* app. A, Comment Submission Schedule.

²¹¹ *Id.*

5. General Support Facilities

a. Background

142. General support facilities (GSF) include the investment and expenses related to vehicles, land, buildings, and general purpose computers. General purpose computers comprise the largest share of the investment and expenses in this category; buildings also comprise a large share. GSF investments are recorded in Part 32 accounts 2110 - 2124, and GSF expenses are recorded in accounts 6110 - 6124.

143. Platform Design. BCPM computes investment in the GSF category for items other than buildings as a percentage of all other plant investment. Building investment is computed as a percentage of switching equipment investment. BCPM sets GSF expenses at a fixed amount per line based on data from its ILEC surveys.²¹²

144. Hatfield also segregates some buildings from the GSF category in computing GSF investment but, instead of segregating all buildings as BCPM does, Hatfield only segregates buildings that house switches (i.e., wire center buildings). To compute GSF investment *not* related to wire center buildings that house switches, Hatfield uses ARMIS data to compute a ratio of ILECs' GSF investment to ILECs' total-plant-in-service investment. This ratio is then applied to the total-plant-in-service investment that the model computes to arrive at the amount of GSF investment not related to wire center buildings. For investment in wire center buildings, Hatfield uses a table of values based on a set number of square feet per switch in use and number of lines served. For GSF expenses, Hatfield uses the ARMIS ratios described above to reach an expense amount.

145. In response to the Commission's notice on access charge reform,²¹³ AT&T contended that the allocation of embedded GSF expenses, including general purpose computer expenses, results in the inappropriate support through regulated access charges of ILECs' billing and collection services, which are nonregulated interstate services.²¹⁴ We concluded in our *Access Charge Reform Order* that the current allocation of GSF costs enables ILECs to recover through regulated interstate access charges costs associated with the ILECs'

²¹² BCPM Jan. 31 submission, att. 10 at 155-57. See *supra* section III.B.2.e.

²¹³ Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, End User Common Line Charges, CC Docket No. 96-262, 94-1, 91-213, and 95-72, *Notice of Proposed Rulemaking, Third Report and Order and Notice of Inquiry*, 62 Fed. Reg. 4,670 (rel. Dec. 24, 1996) (*Access Charge Reform NPRM*).

²¹⁴ *Access Charge Reform Order* at para. 411; AT&T Comments to *Access Charge Reform NPRM* at 67-68, app. E at 2.

nonregulated billing and collection functions.²¹⁵ We also tentatively concluded that such costs should not be recovered through regulated access charges and sought comment on two options for removing such costs from regulated services.²¹⁶ Similarly, universal service support should only provide support for the regulated costs of local exchange service.

146. Input Values. BCPM assumes a default ratio of GSF to all other plant investment equal to approximately five percent, but this ratio can be changed by the user.

147. The majority state Joint Board members argue that land and building costs should not be related to switch costs, as in the BCPM, or line counts, as in the Hatfield model. Rather, the majority state members argue that the historical cost of land and buildings should be "adjusted to reflect forward-looking cost."²¹⁷

b. Issues for Comment and Comment Dates

148. Platform Design and Input Values. We request comment on the appropriate platform assumptions to compute GSF investment and expenses. We seek comment on how we may remove costs for nonregulated activities from costs for regulated activities to incorporate the appropriate amount of GSF investment and expenses into a forward-looking mechanism. We also seek comment on whether a more accurate GSF computation would depend on factors tied to the cost of computers, because much GSF investment and expense is for general purpose computers. Assuming GSF investment is tied more closely to computer costs, we also seek comment on whether the selected mechanism should account for the increasing use of computers by businesses generally. Also, because a large share of GSF expense is attributable to the cost of land, we tentatively conclude that GSF expenses should vary by state with reference to differences in land values. We request comment on this tentative conclusion. Commenters should critique the assumptions regarding GSF investment and expenses that are currently included in BCPM and Hatfield. Commenters advocating a platform that requires an input ratio to calculate GSF expenses should discuss what that input ratio level should be, and provide supporting cost data if possible. As discussed in section III.B.2, interested parties may file comments on these issues on or before October 17, 1997,

²¹⁵ *Access Charge Reform Order* at para. 407. The costs of providing interstate billing and collection service are not, however, treated as unregulated in the Part 64 cost allocation process. Instead, the nonregulated billing and collection costs are identified through the Part 36 and Part 69 cost allocation process. The separations process allocates these costs to the various separations categories based on the separations of plant specific expenses, plant non-specific expenses, and customer operations expenses. *Access Charge Reform Order* at para. 410.

²¹⁶ *Access Charge Reform Order* at paras. 407-418.

²¹⁷ Majority State Members' Second Report at 12-13.

and reply comments on or before October 27, 1997.²¹⁸

6. Depreciation

a. Background

149. Economic depreciation measures the periodic reduction in the market value of an asset over time. In the Order, we concluded that to calculate depreciation expense the selected mechanism and state cost studies must use economic lives and future net salvage percentages within the range currently authorized in the Commission's rules.²¹⁹ Commission-authorized depreciation lives are not only estimates of asset physical lives, but also reflect the impact of obsolescence, and therefore are appropriate measures of depreciation. We also stated in the Order that we shortly intend to issue a notice of proposed rulemaking to examine further our depreciation rules.²²⁰

150. Input Values. When calculating depreciation expenses, the models do not simulate the periodic reduction in the market value of the assets. Rather, they use "adjusted projected lives" to recover the current costs of the assets. Under this approach, the annual depreciation charges associated with an asset are computed by dividing the asset's current cost by its adjusted projected life.²²¹ A shorter life will increase the annual depreciation expense.

151. Commenters disagree on the depreciation rates to be used as inputs to the models. Bell Atlantic and NYNEX (BANX) state that proxy model advocates cannot "have it both ways," by basing costs on an ideal competitive network, while basing depreciation on a method that makes sense only for a rate-of-return regulated monopoly.²²² BANX assert that the models must employ accelerated depreciation methods.²²³ Other commenters agree that

²¹⁸ See *infra* app. A, Comment Submission Schedule.

²¹⁹ Order at para. 250.

²²⁰ Order at para. 250.

²²¹ The adjusted projected life of an asset is its projected life adjusted by its future net salvage value. The projected life is the expected service life at installation, reflecting not only the physical life of the equipment, but also the obsolescence associated with the replacement of older equipment with equipment that uses new technologies.

²²² BANX model comments at 11.

²²³ BANX model comments at 11.

the models should use depreciation factors used by competitive firms.²²⁴ Some commenters assert that shorter adjusted projected lives reflect realistic economic lives.²²⁵ They also argue that current regulatory depreciation methods project excessively long asset lives and therefore generate a reserve deficiency, that they underestimate the cost of providing telecommunications, and that they do not reflect the impact of competition.²²⁶

b. Issues for Comment and Comment Dates

152. Input Values. In light of our conclusion that depreciation should be computed within the range specified in our rules, we tentatively conclude that we should adopt, as an input to our forward-looking cost mechanism, depreciation expenses that reflect a weighted average of the rates authorized for carriers that are required to submit their rates to us. We request comment on this tentative conclusion. Further, we seek comment on whether adjusted projected lives should reflect the asset lives of facilities and equipment dedicated to providing only the supported services or whether the asset lives should reflect a decision to replace existing plant with plant that can provide broadband services.²²⁷

153. As noted in the Order, we intend to issue a notice of proposed rulemaking in the near future to consider changes to the Commission's depreciation rules. We cannot be certain, however, that our new rules will be effective in time for states to incorporate them in their cost studies, which they must file in February 1998. Accordingly, we tentatively conclude that we should use the range prescribed in the Commission's current rules for purposes of this proceeding, with the understanding that we may adjust the depreciation inputs to our mechanism in light of the outcome of our depreciation rulemaking. We seek comment on this tentative conclusion, and also on whether the states also should be permitted to adjust their cost studies to incorporate any changes to our depreciation rules. In addition, we ask parties to discuss how the inclusion of depreciation rates in the selected mechanism would be affected by changes in the Commission's depreciation rules.

154. As discussed in section III.B.2, interested parties may file comments on these issues on or before October 17, 1997, and reply comments on or before October 27, 1997.²²⁸

²²⁴ See, e.g., Aliant model comments at 7; MFS Communications Company (MFS) model comments at 30; GTE model reply comments at 17.

²²⁵ BANX model comments at 11-12; GTE model reply comments at 16.

²²⁶ BANX model comments at 11-12; GTE model reply comments at 16.

²²⁷ Lawrence K. Vanston, *Transforming the Local Exchange Network* (1994).

²²⁸ See *infra* app. A, Comment Submission Schedule.

7. Expenses

a. Expenses in General

(1) Background

155. Platform Design. BCPM estimates expenses on a per-line basis. These estimates are derived from a survey of ILECs.²²⁹ This is a significant change from BCPM's predecessor models, which used ARMIS ratios for plant specific expenses.²³⁰ BCPM permits users to vary expense estimates for small, medium, and large companies, although the default values for BCPM do not vary with company size. In general, Hatfield estimates most expenses based on ARMIS data, expressed as ratios of investment.²³¹ Panelists in our January 1997 workshop contended that some expenses vary with investment and some vary with line counts.²³²

156. Input Values. BCPM estimates total expenses, as detailed above, at \$11.34 per line per month. Hatfield's estimates of total expenses vary based on investment or other costs.

(2) Issues for Comment

157. Platform Design. We seek comment on how to establish forward-looking expenses for the selected mechanism. We seek comment on which expenses should be calculated on a per-line basis, as BCPM does, and which should be calculated as a ratio of investment, as Hatfield does. We tentatively conclude that the selected mechanism should provide the user with the capability to calculate each category of expense based on either line count or other investment, at the user's election, and request comment on this tentative conclusion. We also seek comment on whether we should forecast expenses and, if so, what forecasting technique we should use. We tentatively conclude that users should be able to use different expense estimates for small, medium, and large companies, as the BCPM allows. We seek comment on this tentative conclusion. Parties should identify and discuss in detail the differences between expenses that vary with investment and those that vary with line counts, as indicated below. Parties should also provide econometric or other studies supporting their positions. We also seek comment on whether there are measures, other than

²²⁹ BCPM Jan. 31 submission, att. 10 at 155-157.

²³⁰ Sprint Jul. 15 *ex parte*, att. at 18-19.

²³¹ Hatfield Feb. 28 submission at 54-60.

²³² Proxy Model Workshop, Jan. 14, 1997, the second panel.

lines and investment to which specific expenses should be tied.

158. Input Values. We seek comment on the accuracy of BCPM's default input value of \$11.34 per line, and urge the proponents of BCPM to submit the survey upon which they base their expense inputs. We seek comment on how this value should vary for small, medium, and large companies. We seek comment on whether the selected mechanism should use ARMIS data, data from a survey of ILECs,²³³ or data from some other source. Parties should substantiate their suggestions with cost information supporting their input proposals.

b. Plant Specific Expenses

(1) Background

159. Plant specific expenses include such expenses as maintenance of facilities and equipment expenses.

160. Platform Design. BCPM estimates the following plant specific expenses on a per-line basis: network support (USOA Account 6110); general support (6120); Central Office Equipment (COE) switching (6210); operator systems (6220); COE transmission (6230); information origination/termination (6310); and cable and wire facilities (6410).²³⁴ Hatfield estimates central office switching expenses as a percentage of investment in digital switching equipment, and circuit equipment expense as a percentage of investment for all circuit equipment based on a New England Incremental Cost Study rather than an ARMIS ratio of expenses to investment.²³⁵ Hatfield estimates NID expense as a yearly per-line expense. Hatfield uses separate expense ratios for aerial, buried, and underground cable, while BCPM uses a per-line estimate for cable maintenance that does not vary with the plant mix. Because the two models differ in their listing of plant specific expenses, the two resulting expense estimates may not be comparable. Neither model allows plant specific expenses to vary with climate or soil type. The state Joint Board members do not consider either model's approach to plant specific operating costs to be forward-looking because both are based on historical operating cost information.²³⁶

161. Input Values. BCPM's default per-line per-month values for plant specific expenses are: network support -- \$0.15; general support -- \$1.20; COE switching -- \$0.34;

²³³ See *supra* section III.B.2.e. and C.7.a.(1).

²³⁴ BCPM app. B at 18.

²³⁵ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997 draft at 75.

²³⁶ State High Cost Report at 21.

operator systems -- \$0.01; COE transmission -- \$0.23; information origination/termination -- \$0.07; and cable and wire facilities -- \$2.76.²³⁷ Hatfield's default central office switching expense factor is 2.69 percent of digital switching investment.²³⁸ Hatfield's default circuit equipment expense factor is 0.015 percent of circuit equipment investment.²³⁹ Hatfield's default for NID expenses is \$1.00 per line per year. The state Joint Board members recommend that plant specific operating costs be calculated as a percentage of investment, and suggest the following percentages: 3.5 percent for cable and wire; 2.8 percent for central office switching; and 2 percent for transmission. The state members also recommend the use of nationwide factors that do not vary by company.²⁴⁰

(2) Issues for Comment

162. Platform Design and Input Values. We seek comment identifying and discussing the complete set of forward-looking plant-specific expenses for which universal service support should be available, and discussing whether each of these expenses is best estimated on a per-line basis or by some other method.²⁴¹ We seek comment on whether the platforms of BCPM and Hatfield are comparable with respect to their expense assumptions, whether one of the two generates superior expense calculations, or whether expense assumptions of the two should be combined, either in one of the two existing models or in a hybrid model, to estimate expenses most accurately. We seek comment on what specific input values for each of these expenses should be. In addition, we seek comment on whether maintenance expense estimates should depend upon plant mix and, in particular, whether an increase in the use of aerial cable also increases maintenance expenses. We also seek comment on whether plant specific expenses should vary with such characteristics as climate or soil type.

c. Plant Non-Specific Expenses

(1) Background

163. Platform Design. Plant non-specific expenses include such expenses as engineering, network operations, and power expenses. BCPM estimates the following plant

²³⁷ BCPM app. B at 18.

²³⁸ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997, draft at 75.

²³⁹ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997, draft at 75.

²⁴⁰ State High Cost Report at 21.

²⁴¹ We observe that the workshop panelists contend that some expenses vary with investment and some vary with line counts. Proxy Model Workshop, Jan. 14, 1997, second panel.

non-specific expenses on a per-line basis: other property plant (USOA Account 6510); network operations (6530); and access (6540).²⁴² Hatfield calculates network operations expense as a percentage of ARMIS-reported network operations expense.

164. Input Values. BCPM's default per-line per-month plant non-specific expenses are: other property plant -- \$0.03; network operations -- \$1.33; and access \$0.00.²⁴³ Hatfield's default value for network operations expense is 50 percent of ARMIS-reported network operations expense. Hatfield contends that this percentage is reasonable because forward-looking network operations expenses are significantly lower than ARMIS-reported expenses for network operations. Hatfield asserts that ARMIS-reported expenses reflect excessive staffing at end offices.²⁴⁴

(2) Issues for Comment

165. Platform Design and Input Values. We seek comment on the complete set of forward-looking plant non-specific expenses that should be covered by universal service support, and whether we should estimate each of these expenses on a per-line basis or by some other method.²⁴⁵ We also seek comment discussing what specific input values for each of these expenses should be. Parties should substantiate their suggestions with engineering and cost data regarding the forward-looking cost of the plant non-specific expenses that the mechanism should calculate.

d. Customer Services

(1) Background

166. Platform Design. Customer services expenses include marketing, billing, and directory listing expenses. BCPM estimates the following customer services expenses on a per-line basis: marketing (USOA Account 6610) and services (6620).²⁴⁶ Hatfield estimates the cost of bill generation and billing inquiries for end users as a fixed, per-line expense. Hatfield includes a per-line directory listing expense and assigns local number portability

²⁴² BCPM app. B at 18.

²⁴³ BCPM app. B at 18.

²⁴⁴ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997, draft at 74.

²⁴⁵ We observe that the workshop panelists contend that some expenses vary with investment and some vary with line counts. Proxy Model Workshop, Jan. 14, 1997, second panel.

²⁴⁶ BCPM app. B at 18.

expenses on a per-line basis.²⁴⁷ Hatfield also assigns carrier-to-carrier customer service expenses (associated with the provision of unbundled network elements) on a per-line basis.²⁴⁸ Hatfield excludes marketing (USOA Account 6610) entirely.

167. Input Values. BCPM's per-line per-month default values for customer services expenses are: marketing -- \$0.35 and services -- \$2.42.²⁴⁹ State Joint Board members suggest that BCPM's services expenses should be reduced 29 percent to \$1.75 to exclude operator services and directory assistance. They also recommend excluding marketing expenses from the cost of supported services.²⁵⁰ Hatfield's default per-line customer service expenses, which are based on ARMIS data, are: billing -- \$1.22 per month;²⁵¹ directory listing -- \$0.15 per month;²⁵² local number portability -- \$0.25 per month;²⁵³ and carrier-carrier customer service -- \$1.69 per month.²⁵⁴

(2) Issues for Comment

168. Platform Design and Input Values. We seek comment identifying and discussing the complete set of forward-looking customer service expenses that should be covered by universal service support, and whether each of these expenses is best estimated on a per-line basis or by some other method. As noted above, the workshop panelists contended that some expenses vary with investment and some vary with line counts.²⁵⁵ We also seek comment on specific input values for each of these expenses.

e. Corporate Operations

(1) Background

²⁴⁷ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997, draft at 75.

²⁴⁸ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997, draft at 75.

²⁴⁹ BCPM app. B at 18.

²⁵⁰ State High Cost Report at 20.

²⁵¹ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997, draft at 73-4.

²⁵² Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997, draft at 74.

²⁵³ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997 draft at 75.

²⁵⁴ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997 draft, at 75-6.

²⁵⁵ Proxy Model Workshop, Jan. 14, 1997, second panel.

169. Platform Design. Corporate operations expenses include general, administrative, human resources, legal, and accounting expenses. BCPM estimates the following corporate operations expenses on a per-line basis: executive and planning (USOA Account 6710); general and administrative (6720); and uncollectibles (6790).²⁵⁶ Hatfield estimates corporate overhead expense as a percentage of total capital costs and operations expenses.²⁵⁷

170. Input Values. BCPM's per-line per-month default input values for corporate operations expenses are: executive and planning --\$0.14; general and administrative --\$2.15; and uncollectibles --\$0.17.²⁵⁸ Hatfield's default corporate overhead expense is 10.4 percent of the total of capital costs and operations expenses.²⁵⁹ In light of the current model inputs and section 254(k), the State Joint Board members recommend fixing corporate operations expense at 10 percent of the nationwide average of all other costs, or \$2.29 per line per month, whichever is lower.²⁶⁰

(2) Issues for Comment

171. Platform Design and Input Values. We seek comment identifying and discussing the complete set of forward-looking corporate operations expenses that should receive universal service support, and whether each of these expenses is best estimated on a per-line basis or by some other method.²⁶¹ We seek comment on what the specific input values for each of these expenses should be.

f. Dates for Comments on Expenses

172. As discussed in section III.B.2, interested parties may file comments on the issues relating to expenses on or before October 17, 1997, and reply comments on or before

²⁵⁶ BCPM app. B at 18.

²⁵⁷ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997, draft at 73.

²⁵⁸ BCPM app. B at 18.

²⁵⁹ Hatfield Model Release 3.1 Inputs Portfolio, Apr. 3, 1997 draft at 73.

²⁶⁰ State High Cost Report at 22. The state Joint Board members observed that section 254(k) "cautions against attributing an excess of common costs, such as corporate overheads, to universal service." *Id.*

²⁶¹ We observe that the workshop panelists contend that some expenses vary with investment and some vary with line counts. Proxy Model Workshop, Jan. 14, 1997, second panel.

October 27, 1997.²⁶²

8. Other

173. We also seek comment on any other issues related to the platform and inputs to the forward-looking cost models that are currently under consideration. Any such comments should be supported by specific data and analysis of the models. We also seek comment on whether we should develop a method to adjust the costs estimated by our cost mechanism on an annual basis, and if so how we should do so. We seek comment on whether the adjustment mechanism should be tied to inflation and include an offset similar to our price cap mechanisms. Alternatively, we seek comment on whether we should use the actual cost estimates provided by the selected mechanism for a fixed number of years, and re-evaluate and modify the mechanism at the end of that period. As discussed in section III.B.2, interested parties may file comments on these issues on or before October 17, 1997, and reply comments on or before October 27, 1997.²⁶³

D. Support Areas

1. Background

174. Platform Design. A support area is the geographic area used to determine universal service support levels. The support area need not be the same as the geographic area used by the selected mechanism to calculate the cost of providing the supported services. The support area may be an aggregation of those geographic areas used to determine cost. For example, Hatfield 3.1 uses CBGs to determine cost and density zones, which are an aggregation of CBGs with similar line densities, to calculate support. In the Order, we concluded that support areas should be no larger than wire centers.²⁶⁴ While we agreed with the Joint Board that the use of smaller support areas would allow for better targeting of support and minimize the possibility of "cream-skimming,"²⁶⁵ we were uncertain that any

²⁶² See *infra* app. A, Comment Submission Schedule.

²⁶³ See *infra* app. A, Comment Submission Schedule.

²⁶⁴ Order at para. 250, criterion 10.

²⁶⁵ Most high cost areas include some towns and other areas of more concentrated population that are less costly to serve, which may include some high-volume users, particularly businesses, that tend to generate higher revenues. The remaining customers in the area tend to be higher-cost customers with lower call volumes that generate less revenue. "Cream-skimming" refers to the practice of targeting the relatively low-cost, high-revenue customers in high cost areas.

mechanism we adopt could accurately predict the number of customers in such small areas.²⁶⁶

175. To determine the level of support a particular carrier should receive, the Commission must know the number of lines in the support area. Carriers currently do not associate lines with a particular CBG, CB, or grid cell. They do, however, keep records of the number of lines served by each wire center.²⁶⁷ SBC and Sprint suggest that the use of areas smaller than the CBG will require finding the longitude and latitude (i.e., "geo-coding") of households to match lines to CBs or grid cells.²⁶⁸ Commenters also assert that the models do not reflect true line counts within a CBG or for a particular wire center.²⁶⁹ GTE notes that the models use the number of households in each CBG to determine residence line counts. It argues that this approach ignores differing penetration levels among CBGs.²⁷⁰ SBC states that when it compared the line counts for its operations in Texas to the counts predicted by the models, it found a difference of more than 10 percent for almost one-half of its approximately 500 wire centers in Texas.²⁷¹ GTE and Sprint note that the ILECs have line counts for each wire center, and Sprint urges the Commission to obtain those data through an information request to the ILECs.²⁷² State Joint Board members recommend aggregating support calculations on a wire center basis due to extensive resource sharing among CBGs.²⁷³

2. Issues for Comment and Comment Dates

176. Platform Design. We seek comment on whether the Commission should provide support according to geographic areas other than the geographic areas used to calculate cost. If parties suggest that we use an area smaller than a wire center, such as a CBG, they should discuss the ability of carriers to associate lines with such an area. We tentatively conclude that the ability of carriers to associate lines with CBGs, or other small areas will determine how we define support areas in the future. We seek comment on the feasibility of geo-coding households, as proposed by SBC and Sprint. Specifically we seek

²⁶⁶ Order at para. 193.

²⁶⁷ See SBC comments at 22.

²⁶⁸ See SBC comments at 32; Sprint model comments at 13.

²⁶⁹ See, e.g., Ameritech model comments at 19.

²⁷⁰ GTE model comments at 45.

²⁷¹ SBC model comments at 20.

²⁷² GTE model comments at 46; Sprint model comments at 13.

²⁷³ State Members' High Cost Report at 24.

comment on the availability of commercial databases and software to geo-code households, and on the cost, availability, and accuracy of such databases and software. Commenters should specifically address the ability of these products to geo-code households and businesses in rural areas. We note that the California PUC has adopted a state universal service mechanism based on BCPM and uses CBGs to determine support levels.²⁷⁴ We seek comment on how carriers operating under the California state universal service program have associated customers with CBGs. As discussed in section III.B.2, interested parties may file comments on these issues on or before October 17, 1997, and reply comments on or before October 27, 1997.²⁷⁵

IV. SUPPORT FOR LOCAL USAGE

A. Background

177. The Joint Board recommended that support for voice-grade access to the public switched network should include a local usage component.²⁷⁶ In the Order, we agreed with the Joint Board that the Commission should determine the measure of local usage to be supported by federal universal service mechanisms.²⁷⁷ We concluded that "consumers might not receive the benefits of universal service support unless we determine a minimum amount of local usage that must be included within the supported services" because carriers receiving universal service support might charge high per-minute rates that prevent service from being affordable.²⁷⁸ We also observed that, unless the definition of universal service includes a usage component, carriers using technologies (such as wireless) that can provide basic access relatively inexpensively but that entail higher usage-based costs would have an artificial advantage over carriers using technologies that have higher basic access costs and lower usage-based costs.²⁷⁹

B. Tentative Conclusions and Request for Further Comment

178. We tentatively conclude that a local usage component should be included in the

²⁷⁴ California PUC, Rulemaking on the Commission's Own Motion into Universal Service and to Comply with the Mandates of Assembly Bill 3643, D. 96-10-066 (Oct. 25, 1996).

²⁷⁵ See *infra* app. A, Comment Submission Schedule.

²⁷⁶ Recommended Decision, 12 FCC Rcd at 113.

²⁷⁷ Order at para. 65.

²⁷⁸ Order at para. 67.

²⁷⁹ Order at para. 69.

definition of universal service to ensure that customers realize the benefits of universal service support even if they cannot afford high per-minute charges. Failing to include a local usage component in the definition of universal service would create a bias in favor of carriers (such as wireless carriers) that provide service with facilities that allow relatively inexpensive access to the network but that have higher usage costs. This bias would be exacerbated if we later set support levels using competitive bidding. Carriers able to provide relatively inexpensive access could underbid competitors, yet customers might not receive affordable service because of high usage-based charges.

179. We seek comment on the level of local usage that should be included. We could prescribe this level to be the number of minutes per month used by the average customer subscribing to flat-rate local service. Alternatively, we could define the level as the product of the average number of calls that are included in carriers' measured-rate service and the average call length.²⁸⁰ We seek comment on other potential ways to calculate the local usage component.²⁸¹ We also seek comment on whether we should consider the impact of increased Internet usage on average call length and, if so, how. Finally, we request comment on whether the local usage component should differ for residential and business service. Commenters submitting usage data are requested to segregate those data between residential and business users.

180. We also seek comment on the connection, if any, between the amount of usage that the models assume to determine specifications such as switch size and average cost per minute, and the amount of usage that should be supported as part of the definition of universal service.²⁸² We tentatively conclude that no necessary connection exists between these two measures of usage because they serve different purposes within the support mechanisms. For example, Hatfield 3.1 currently determines per-minute switched cost based on all usage (local and toll), but determines support based only on local usage. Similarly, we tentatively conclude that the forward-looking economic cost methodology that we employ should consider all local usage to determine switching capacity and to compute average cost per minute, and that we should determine the amount of local service to include in the definition of universal service without regard to these other measures of usage.

181. Interested parties may file comments on all of the issues relating to the level of

²⁸⁰ For example, Bell Atlantic offers measured-rate service in the District of Columbia that includes 60 free calls.

²⁸¹ For example, Bell Atlantic assumed 500 minutes of local usage per month in their proposed method of determining support levels without the use of a cost model. Letter from Gerald Asch, Bell Atlantic, to William F. Caton, FCC, dated Mar. 26, 1997, at att. (Bell Atlantic Mar. 26 *ex parte*).

²⁸² See Order at para. 68.

local usage on or before October 17, 1997, and reply comments on or before October 27, 1997.²⁸³

V. PROCEDURAL MATTERS AND ORDERING CLAUSE

A. Ex Parte Presentations

182. This is a non-restricted notice-and-comment rulemaking proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided that they are disclosed as provided in the Commission's rules. See generally 47 C.F.R. §§ 1.1202, 1.1203, 1.1206.

B. Initial Regulatory Flexibility Act Certification

183. Section 603 of the Regulatory Flexibility Act (RFA)²⁸⁴ requires an Initial Regulatory Flexibility Analysis (IRFA) in notice and comment rulemaking proceedings, unless we certify that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."²⁸⁵ It further requires that the IRFA describe the impact of the proposed rule on small entities. The RFA generally defines "small entity" as having the same meaning as the term "small business concern" under the Small Business Act, 15 U.S.C. § 632.²⁸⁶ The Small Business Administration (SBA) defines a "small business concern" as one that "(1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) meets any additional criteria established by the SBA."²⁸⁷ Section 121.201 of the Small Business Administration regulations defines a small telecommunications entity in SIC code 4813 (Telephone Companies Except Radio Telephone) as any entity with 1,500 or fewer employees at the holding company level.²⁸⁸ We have determined that the RFA is

²⁸³ See *infra* app. A, Comment Submission Schedule.

²⁸⁴ See 5 U.S.C. § 601 *et seq.* The RFA was amended by the "Small Business Regulatory Enforcement Fairness Act of 1996" (SBREFA), Title II of the Contract with America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA).

²⁸⁵ 5 U.S.C. § 605(b).

²⁸⁶ 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of small business applies "unless an agency after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definitions in the Federal Register."

²⁸⁷ 15 U.S.C. § 632.

²⁸⁸ 13 C.F.R. § 121.201.

inapplicable to this FNPRM because the non-rural LECs affected by the proceeding do not meet these criteria.

184. The Commission has not adopted a definition of a "small LEC." Out of an abundance of caution, however, the Commission did include rural LECs in the regulatory flexibility analysis accompanying the Order as if rural LECs fell within the definition of "small entity" for regulatory flexibility purposes.²⁸⁹ We note that the term "rural" LEC, which is statutorily defined, is based on the population density of and number of access lines in the area served.²⁹⁰ For purposes of this certification, however, we need not make a conclusive finding on whether the rural LECs are small entities for purposes of the RFA, for even if rural LECs were "small entities" under the RFA, we would still certify that no regulatory flexibility analysis is necessary because none of the proposals in the FNPRM, if adopted, would affect rural LECs. This FNPRM seeks comment only on the mechanisms the Commission should use to estimate the forward-looking economic costs that non-rural LECs would incur to provide universal service in rural, high cost and insular areas. In this FNPRM, we do not consider or adopt a forward-looking economic cost mechanism for rural LECs. As discussed in the Final Regulatory Flexibility Analysis in the Order, the Commission has permitted rural carriers to shift to a forward-looking economic cost mechanism more gradually than larger carriers.²⁹¹

185. We therefore certify, pursuant to section 605(b) of the RFA, that these proposals would not have significant economic impact on a substantial number of small entities.²⁹² The Commission will send a copy of this Certification, along with this FNPRM, in a report to Congress pursuant to the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. § 801(a)(1)(A), and to the Chief Counsel for Advocacy of Small Business Administration, 5 U.S.C. § 605(b). A copy of this initial certification will also be published in the Federal Register.

C. Deadlines and Instructions for Filing Comments

186. Pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. sections 1.415 and 1.419, interested parties may file comments concerning the platform designs of the switching, interoffice trunking, signaling, and local

²⁸⁹ Order at paras. 885, 892, 944-50. See also 13 C.F.R. § 121.902(b)(4).

²⁹⁰ We define "rural" as those carriers that meet the statutory definition of a "rural telephone company" set forth at 47 U.S.C. § 153(37).

²⁹¹ Order at paras. 885, 944-50.

²⁹² 47 U.S.C. § 605(b).

tandem components must be submitted on or before August 8, 1997, and parties should submit corresponding reply comments on or before August 18, 1997. Comments concerning the platform design features determining customer location, including the geographic unit for cost calculations and the algorithm measuring customer distribution and line counts, on or before September 2, 1997, and reply comments regarding these components should be submitted on or before September 10, 1997. Comments discussing the platform-design issues relating to outside plant investment, including the algorithms determining plant mix, installation and cable costs, drop lengths, structure sharing, the fiber-copper cross-over point, digital loop carriers, and the wireless threshold must be submitted on or before September 24, 1997, with reply comments submitted on or before October 3, 1997. Comments discussing all platform issues not otherwise addressed, including the components addressing general support facilities, expenses, and support areas, and all input values issues must be submitted by October 17, 1997, with reply comments due on or before October 27, 1997. Appendix A contains a chart summarizing the submission schedule for comments and reply comments.

187. We direct all interested parties to include the name of the filing party and the date of the filing on each page of their comments and reply comments. Comments and reply comments also must clearly identify the specific portion of this Further Notice of Proposed Rulemaking to which a particular comment or set of comments is responsive. If a portion of a party's comments does not fall under a particular topic listed in the outline of this Notice, such comments must be included in a clearly labelled section at the beginning or end of the filing. Irrespective of the length of their comments or reply comments, parties shall include a table of contents in their documents.²⁹³

188. Parties should send their comments or reply comments to Office of the Secretary, Federal Communications Commission, 1919 M Street, N.W., Room 222, Washington, D.C. 20554. Parties filing on paper should also send copies of their comments to the individuals listed on the attached Service List (app. B). Parties filing in paper form should also file one copy of any documents filed in this docket with the Commission's copy contractor, International Transcription Services, Inc., 1231 20th Street, N.W., Washington, D.C. 20036. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, 1919 M Street, N.W., Room 239, Washington, D.C. 20554.

189. Commenters may also file informal comments or an exact copy of formal comments electronically via the Internet at <http://gulfoss.fcc.gov/cgi-bin/websql/cgi-bin/comment/comment.htm>. Only one copy of electronically-filed comments must be submitted. A commenter must note whether an electronic submission is an exact copy of formal comments on the subject line. A commenter

²⁹³ Cf. 47 C.F.R. § 1.49(b).

also must include its full name and Postal Service mailing address its submission.

190. Parties are also asked to submit their comments and reply comments on diskette. Such diskette submissions are in addition to and not a substitute for the formal filing requirements addressed above. Parties submitting diskettes should submit them to Sheryl Todd of the Common Carrier Bureau, 2100 M Street, N.W., Room 8611, Washington, D.C. 20554. Such a submission should be on a 3.5 inch diskette formatted in an IBM compatible form using WordPerfect 5.1 for Windows or compatible software. The diskette should be submitted in "read only" mode. The diskette should be clearly labelled with the party's name, proceeding, type of pleading (comment or reply comments) and date of submission. Each diskette should contain only one party's comments in a single electronic file. The diskette should be accompanied by a cover letter.

D. Ordering Clause

191. IT IS ORDERED, pursuant to Sections 1, 4(i) and (j), and 254 of the Communications Act as amended, 47 U.S.C. §§ 151, 154(i), 151(j), and 254, that the Further Notice of Proposed Rulemaking IS HEREBY ADOPTED and comments ARE REQUESTED as described above.

192. IT IS FURTHER ORDERED, pursuant to Sections 0.91 and 0.291 of the Commission's rules, 47 C.F.R. §§ 0.91, 0.291, that authority is delegated to the Common Carrier Bureau to issue orders in this proceeding directing model proponents to make certain changes in their models in order for those models to remain under consideration in this proceeding.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
William F. Caton
Acting Secretary

**APPENDIX A
COMMENT SUBMISSION SCHEDULE**

Date	Filing
August 8, 1997	<i>Initial comments</i> concerning the platform design of the switching, interoffice trunking, signaling, and local tandem components.
August 18, 1997	<i>Reply comments</i> addressing the platform design of the switching, interoffice trunking, signaling, and local tandem components.
September 2, 1997	<i>Initial comments</i> addressing the design of the customer location component.
September 10, 1997	<i>Reply comments</i> concerning the design of the customer location component.
September 24, 1997	<i>Initial comments</i> discussing the design of the outside plant investment components, including the algorithms determining plant mix, installation and cable costs, drop lengths, structure sharing, the fiber-copper cross-over point, digital loop carriers, and the wireless threshold.
October 3, 1997	<i>Reply comments</i> regarding the design of the outside plant investment components, including the algorithms determining plant mix, installation and cable costs, drop lengths, structure sharing, the fiber-copper cross-over point, digital loop carriers, and the wireless threshold.
October 17, 1997	<i>Initial comments</i> discussing all platform issues not otherwise addressed, including the components addressing general support facilities, expenses, and support areas. <i>Initial comments</i> concerning hybrid models, all input values, and support for local usage.
October 27, 1997	<i>Reply comments</i> discussing all platform issues not otherwise addressed, including the components addressing general support facilities, expenses, and support areas. <i>Reply comments</i> concerning hybrid models, all input values, and support for local usage.

**APPENDIX B
SERVICE LIST**

The Honorable Reed E. Hundt, Chairman
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, DC 20554

The Honorable Rachelle B. Chong,
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, DC 20554

The Honorable Susan Ness, Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, DC 20554

The Honorable James H. Quello,
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, DC 20554

The Honorable Julia Johnson, State Chair,
Chairman
Florida Public Service Commission
2540 Shumard Oak Blvd.
Gerald Gunter Building
Tallahassee, FL 32399-0850

The Honorable David Baker,
Commissioner
Georgia Public Service Commission
244 Washington Street, S.W.
Atlanta, GA 30334-5701

The Honorable Sharon L. Nelson,
Chairman
Washington Utilities and Transportation
Commission
1300 South Evergreen Park Dr. S.W.
P.O. Box 47250
Olympia, WA 98504-7250

The Honorable Laska Schoenfelder,
Commissioner
South Dakota Public Utilities Commission
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Florida Public Service Commission
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100 North Senate Avenue, Room N501
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Timothy Peterson, Deputy Division Chief
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